EE325 STATA session II ☺

Class lecture examples:

- Table 6.4 Fertility and other data for 64 countries
- Table 7.4 Total cost and output
- Table 7.9 The demand for Chicken in the United States, 1960-1982
- Table 8.9 Savings and Personal Disposal Income (billions of dollars), United States, 1970-1995

1. The demand for roses. **Table 7.6** gives quarterly data on these variables:

$Y =$ *quantity of roses sold* , *dozens*
$X_2 =$ *average wholesale price of roses*, \$ / *dozen*
$X_3 =$ *average wholesale price of carnations*, \$ / *dozen*
$X_4 =$ *average weekly family disposable income*, \$ / *week*
$X_5 =$*the trend Variable taking values of* 1, 2,*and so on*,, *for the period* 1971 – *III to* 1975 – *II* in *the Detroit Metropolitian area*

You are asked to consider the following demand functions:

$$Y_t = \alpha_1 + \alpha_2 X_{2t} + \alpha_3 X_{3t} + \alpha_4 X_{4t} + \alpha_5 X_{5t} + u_t$$

$$\ln Y_t = \beta_1 + \beta_2 \ln X_{2t} + \beta_3 \ln X_{3t} + \beta_4 \ln X_{4t} + \beta_5 X_{5t} + u_t$$

a) Estimate the parameters of the linear model and interpret the results.
b) Estimate the parameters of the log-linear model and interpret the results.
c) β_2 , β_3 , *and* β_4 give, respectively, the own-price, cross-price, and income elasticities of demand. What are their a priori signs? Do the results concur with the a priori expectations?

2. **Table 7.12** gives data for real consumption expenditure, real income, real wealth, and real interest rates for the U.S. for the years 1947-2000.

   a) Given the data in the table, estimate the linear consumption function using income, wealth, and interest rate. What is the fitted equation?
   b) What do you estimated coefficients indicate about the variables' relationships to consumption expenditure?

3. **Table 7.11** gives data for the manufacturing sector of the Greek economy for the period 1961-1987

   a) See if the Cobb-Douglas production function fits the data given in the table and interpret the results. What general conclusion do you draw?
   b) Now consider the following model:

$$Output / labor = A(K / L)^{\beta} e^{u}$$

   where the regressand represents labor productivity and the regressor represents the capital labor ratio. What is the economic significance of such a relationship, if any? Estimate the parameters of this model and interpret your results.

Class activities ☺ ☺

You can present and submit as a team or individual for participation credits ☺

1. A variation of the wage-determination equation is as follows:

$$\widehat{W}_t = 1.073 + 5.288V_t - 0.116X_t + 0.054M_t + 0.046M_{t-1}$$

(0.797) (0.812) (0.111) (0.022) (0.019)

$$R^2 = 0.934 \qquad df = 14$$

Where W = wages and salaries per employee
V = unfilled job vacancies in Great Britain as a percentage of the total number of employees in Great Britain
X = GDP per person employed
M= Import prices
M_{t-1} = Import prices in the previous (or lagged) year

(The estimated standard errors are given in the parentheses)

a) Interpret the preceding equation.
b) Test the overall significance of the observed regression.
c) Which of the estimated coefficients are individual statistically significant?

2. **Table 8.8** The Cobb-Douglas Production Function for the Mexican Economy, 1955 – 1974

$$lnGDP_t = \beta_1 + \beta_2 lnLabor_t + \beta_3 lnCapital_t \qquad (1)$$

$$Ln\frac{GDP_t}{Labor_t} = \gamma_1 + \gamma_1 Ln\left(\frac{Labor_t}{Capital_t}\right) \qquad (2)$$

Is the Maxican economy characterized by constant returns to scale over the sample period?